Heat Sink

Field of Invention

The present invention relates to a heat sink.

Background of Invention

Referring to Figures 7 and 8, a conventional heat sink system 80 includes a plurality of heat sinks 81. Each heat sink 81 includes a strip 84 and two flanges 85 extending from a side of the strip 84. A recess 82 is cut into the strip 84 in order to receive copper bars 83. The heat sinks 81 are attached to the copper bars 83 via soldering. However, it is difficult to align the heat sinks 81 with one another. Moreover, the heat sinks 81 are not connected with one another but, instead, individually attached to the copper bars 83.

Referring to Figure 9, another conventional heat sink system 90 includes a plurality of heat sinks 91. Each heat sink 91 includes a strip 94 and two flanges 95 extending from a side of the strip 94. A recess (not shown) is cut into the strip 94 in order to receive copper bars. The heat sinks 91 are attached to the copper bars via soldering. Each flange 95 defines a recess 96 and includes an edge 97 that can be put in a recess 96 of another heat sink 91. However, the heat sinks 91 would be connected with one another inadequately but for the copper bars.

The present invention is hence intended to obviate or at least alleviate the problems encountered in prior art.

Summary of Invention

It is the primary objective of the present invention to provide a heat sink that can be firmly connected with another heat sink without using any external fastener.

According to the present invention, a heat sink includes a strip, two flanges extending from a side of the strip, at least one slot defined in the strip near each of the flanges, at least one tongue projecting from an internal side of each of the flanges and at least one lug projecting an edge of each of the flanges and defining an aperture. The lugs can be inserted through the slots of another heat sink so that the apertures thereof can receive the tongues of the other heat sink.

Other objects, advantages and novel features of the invention will become more apparent from the following detailed description in conjunction with the attached drawings.

Brief Description of Drawings

The present invention will be described via detailed illustration of embodiments referring to the drawings.

Figure 1 is a perspective view of a heat sink system according to a first embodiment of the present invention.

Figure 2 is a perspective view of a heat sink of a first type used in the heat sink system of Figure 1.

Figure 3 is a cut-away view of the heat sink of Figure 2.

Figure 4 is a cross-sectional view of several heat sinks of Figure 2 connected with one another.

Figure 5 is a perspective view of a heat sink of a second type used in the heat sink system of Figure 1.

Figure 6 is a cross-sectional view of several heat sinks of Figure 5 connected with one another.

Figure 7 is a left side view of a conventional heat sink system.

Figure 8 is a front view of the heat sink system of Figure 7.

Figure 9 is a perspective view of a conventional heat sink system.

Detailed Description of Embodiments

Referring to Figure 1, a heat sink system 1 includes a plurality of heat sinks 10 according to a first embodiment of the present invention, a plurality of heat sinks 20 according to a second embodiment of the present invention and a plurality of copper bars 30. The heat sinks 10 and 20 may be secured to the copper bars 30 via soldering.

Figure 2 shows a heat sink 10 according to a first embodiment of the present invention. The heat sink 10 includes a strip 12 and two flanges

13 extending from a side of the strip 12. A recess 11 is cut into the strip 12 in order to receive the copper bars 30.

Two slots 14 are defined in the strip 12 near each flange 13. Two tongues 15 extend from an internal side of each flange 13. Each tongue 15 is formed via cutting a U-shaped slit into each flange 13 and bending a portion of the flange 13 confined in the U-shaped slit. Such cutting and bending can be completed in a punching process using a proper die.

Referring to Figure 3, two lugs 16 extend from each flange 13 in a Z-figured path so that the lugs 16 extend between the flanges 13. Each lug 17 defines an aperture 14.

Referring to Figure 4, several heat sinks 10 are assembled. For the convenience of description, they are referred to as first, second, third and fourth heat sinks 10 from the left to the right. The lugs 16 of the first heat sink 10 are inserted through the slots 14 defined in the second heat sink 10. Thus, the first heat sink 10 is aligned with the second heat sink 10. The tongues 15 of second heat sink 10 are inserted in the apertures 17 defined in the lugs 16 of the first heat sink 10. Thus, the first heat sink 10 is retained to the second heat sink 10. Similarly, the second heat sink 10 is retained to the third heat sink 10, and the third heat sink 10 to the fourth heat sink 10.

Figure 5 shows a heat sink 20 according to a second embodiment of the present invention. The heat sink 20 includes four slots 24, four tongues

25 and four lugs 26 similar to the slots 14, the tongues 15 and the lugs 26 of the heat sink 10, respectively. Accordingly, each lug 26 defines an aperture 27. The heat sink 20 is different from the heat sink 10 in defining a window 21 instead of the recess 11.

Referring to Figure 6, several heat sinks 20 are assembled. The copper bars 30 are inserted in the windows 21 of the heat sinks 20.

The present invention has been described via detailed illustration of some embodiments. Those skilled in the art can derive variations from the embodiments without departing from the scope of the present invention. Therefore, the embodiments shall not limit the scope of the present invention defined in the claims.